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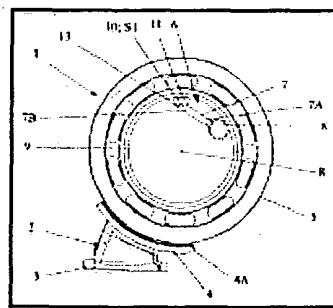
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 (54) FISHING TACKLE
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Abstract

The invention relates to a fly-fishing reel (1) comprising a frame (2) having a mounting bracket (3) for mounting the reel onto a *fishing rod* and a line spool (5) rotatably mounted in the frame, whereby the line spool is provided with a crank (6). According to the invention the crank is pivotally mounted in an opening (9) provided substantially centrally in the line spool, for pivotal motion



between an inactive position in the area of the axis of rotation (R) of the line spool and an active position closer to the outer circumference of the line spool. The invention also relates to a crank for use together with a fly-fishing reel.



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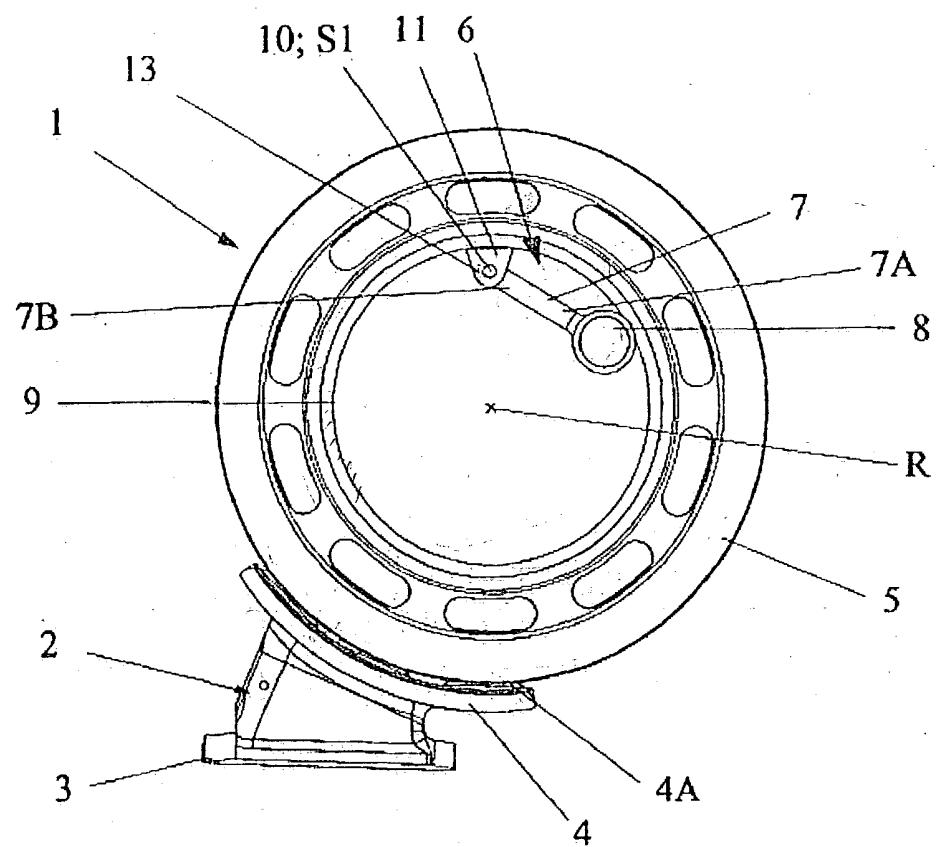
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TITLE: FISHING TACKLE**TECHNICAL FIELD**

The present invention relates generally to fishing tackles, and in particular to a fly-fishing reel as specified in the preamble of the accompanying claim 1 and a crank for a fly-fishing reel according to the preamble of the accompanying claim 15.

BACKGROUND

Basically, fishing reels specifically used for fly-fishing consist of a line spool that is rotatably mounted in a supporting frame. The frame is provided with a mounting bracket for fixing the reel onto a fly rod. Traditionally, the line spool has been rotatably mounted on a shaft provided in the center thereof, whereby the shaft in turn has been mounted in a frame designed as a housing, covering one or in some cases both sides of the spool. Examples of this type of fly-fishing reel are disclosed in U.S. Patents 5,626,303; 5,752,667; 5,259,566 and 5,921,492.

In Swedish Patent SE 460 329 is described a further development of this center mounting of the line spool, whereby the line spool in this case has a central opening in which the spool is mounted by means of a number of rotatable supporting rolls. Finally, in my Swedish Patent SE 470 473 a revolutionary fly-fishing reel is disclosed, where the reel is not center mounted as before, but is supported at the frame, in connection with the circumference of the line spool, by means of a number of bearing rolls.

Fly-fishing reels are further provided with at least one crank that is directly or indirectly connected to the line spool, and by means of which the reel is brought to rotate for winding the line onto the spool. For all of the mentioned, known types of fly-fishing reels, the most common solution is to provide a crank or two cranks positioned diametrically opposite each other in the form of a handle part that is provided directly at the side surface of the line spool adjacent its outer circumference. Such a crank is disclosed in the Swedish Patents mentioned above and in the mentioned U.S. Patents 5,752,492 and 5,921,492.

In an alternative embodiment that is disclosed for an example in the above mentioned U.S. Patents 5,626,303 and 5,259,566 as well as in U.S. Patent 4,049,217 and in WO 98/21942, the

crank is designed having a handle part that is supported at the end of an arm or the like. The arm is in turn rotatably supported in the frame and transmits the motion of the crank to the line spool through a transmission.

5 Both of the described general designs of the crank mechanism that drives the line spool during winding of the line onto the spool basically suffer from a number of drawbacks. The problem that is perhaps most severe arises when a hooked fish draws out line from the spool. Thereby, the crank mechanism will rotate with the line spool. Particularly, when a hooked fish runs, the crank mechanism may in such a case hit the fisherman's hands and fingers with high speed and may cause discomfort and even injuries. In addition, there is an apparent risk for line
10 breakage if the crank mechanism gets stuck in the fisherman's clothes or equipment during fast unwinding of line. The type of fixed crank mechanism that protrudes from the side of the reel has some further practical disadvantages, partly due to the fact that it becomes relatively lengthy to adapt the reel for left- and right-handed users, respectively and partly due to the fact
15 that it makes the reel more bulky. This affects the size of the sale packaging and consequently the required storage and transport space.

For the type of fly-fishing reel described above, where the crank mechanism through an arm and a transmission indirectly transmits the motion to the line spool, solutions have been presented in order to eliminate the risks associated with the rotating crank during fast unwinding of line. Such solutions are, for example, presented in the above mentioned U.S. Patents 5,626,303 and 5,259,566. According to said solutions, the crank itself is disconnected from the transmission, through a mechanism, during unwinding of line from the line spool, i.e. the crank stands still during such unwinding. However, such a solution to the problem is only
20 applicable to this particular type of crank mechanism, which in itself requires a transmission that is comparatively expensive and space consuming and considerably increases the weight of
25 the reel.

For the second type, where a handle part is directly provided at the side surface of the line spool, no serious attempts have, to my knowledge, been made to eliminate the described risks
30 and disadvantages.

To sum up, it can thus be established that the prior solutions to the problem of co-rotation of the crank during fast unwinding of line, are restricted to the complicated and in many respects impractical type of reel having a transmission between the crank and the line spool. There is an apparent need for finding a solution to these problems also for the second basic type of reel having a crank mechanism provided directly at the line spool. This type of reel has a large share of the market within this field.

SUMMARY OF THE INVENTION

In the light of the above discussion, a basic object of the invention is to eliminate or at least limit the effect of the above described problems in an efficient and appropriate way.

More specifically, the object is to find a simple way of eliminating the risks and disadvantages associated with the crank that, by the type of fly-fishing reel mentioned in the introduction, rotates with the line spool during unwinding of line from the line spool, and to achieve this while maintaining a simple and flexible reel design that is comfortable to handle.

The invention is based on the knowledge that for a type of fly-fishing reel where the line spool is supported in such a way that it permits providing a substantially central opening therein, it is possible to benefit by such an opening in the free central area of the line spool. Consequently, the above mentioned basic object of the invention is achieved by utilizing this central area to mount the crank mechanism. According to a first aspect of the invention it is particularly suggested that the crank is pivotally journalled in an opening in the central area of the line spool for pivoting a handle portion thereof between an inactive position in the central area of the line spool and an active position closer to the outer circumference of the line spool.

In this way it is achieved that in the inactive position the crank and in particular its handle portion, is placed in a position where it cannot cause the discussed risks and problems or alternatively is kept completely out of the way. At the same time, in the active position the handle portion may be positioned where it is within easy reach, and is easy and comfortable to handle.

According to an embodiment of the invention, this pivoting movement is achieved in a simple and efficient way by providing the crank with a support arm that with one end is pivotally supported in a radially outer area of the opening and that in the other end supports the handle portion.

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According to another embodiment of the invention the crank mechanism is biased towards the inactive position. Thereby, the crank and in particular the handle portion will automatically be moved to this inactive position when released, which further minimize the risk for injuries or other problems.

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According to a further embodiment of the invention the crank mechanism is provided so that it is pivotal about an axis that is extended generally in the axial direction of the line spool. With such a configuration a very simple and flexible design is achieved that is also well suited for an extremely simple adaptation of the crank to right- or left-handed use.

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According to yet another embodiment of the invention, the crank mechanism is arranged to be pivotal about an axis extending generally perpendicular to the axial direction of the line spool. Such a solution provides a simple opportunity to cause the crank and in particular the handle portion to be automatically essentially or completely accommodated within a central opening 20 of the line spool, completely out of the way, when in its inactive position.

20

By making the support arm angled between its ends the handle part may, according to another embodiment, very advantageously be positioned relatively far out from the center of the line spool in the active position. This is advantageous in particular for larger reels and for reels 25 where a line spool with increased line capacity is desirable.

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According to another aspect of the invention, a crank is provided that is intended for mounting on a fly-fishing reel, and that is designed employing the principles of the first aspect of the present invention.

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Briefly, the present invention offers the following advantages:

- While maintaining a simple and very light reel design, the risks and disadvantages may be eliminated that are normally associated with a crank that is directly connected to and rotates with the line spool;

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- It allows a design where the crank in its inactive position, i.e. when no reeling-in of line takes place, is positioned completely inside the outer sides of the line spool;

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- It allows a simple adaptation to right- and left-handed users, respectively;

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- It allows a compact design that without any dismantling requires minimum storage and transport space.

Further objects, features and advantages of the invention, as well as further embodiments thereof are clear from the dependent claims and the following description of exemplifying embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is described in more detail, in connection with the appended drawings, in which:

20 Fig. 1 is plan view from the side of a first embodiment of a fly-fishing reel according to the invention, with the crank in an active reeling-in position;

Fig. 2 is a view corresponding to fig. 1 of the first embodiment of the fly-fishing reel according to the invention, with the crank illustrated also in an inactive position;

25 Fig. 3a is an end view of the fly-fishing reel according to figs. 1 and 2, with the handle portion illustrated in a position for a right-handed user;

Fig. 3b illustrates a detail of the handle portion and its mounting bracket, in longitudinal section;

Fig. 4 is a perspective view of the fly-fishing reel according to drawing figures 1-3;

Fig. 5 is a schematic plan view from the side of a second embodiment of a fly-fishing reel according to the invention;

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Fig. 6 is a likewise schematic, partial end view of the fly-fishing reel according to fig. 5; and

Fig. 7 is a schematic illustration, in end view, of a third embodiment of a fly-fishing reel according to the invention.

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DETAILED DESCRIPTION

With reference primarily to figs. 1-4 the basic principles of the invention shall now be described by means of a first, embodiment illustrated in these figures. At the same time the differences in comparison with conventional reel designs will be explained.

Drawing figures 1-4 illustrate a fly-fishing reel 1 having a frame or base body 2 forming on the one hand a mounting bracket 3 for attaching the reel 1 to a fly rod, not illustrated, and on the other hand a bearing 4 for a line spool 5. The bearing 4 consists of three rolls 4A that are rotatably mounted in the frame and that engage corresponding formations formed at the inner surfaces of the line spool, close to its outer circumference. This is the general reel design described in my Swedish Patent SE 470 473 that was mentioned in the introduction. Regarding further details of the actual reel design, reference is made to that patent.

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As was indicated in the introduction, the basic object of the invention is to provide a fly-fishing reel eliminating the risks and disadvantages associated with the conventional crank that is connected to the line spool and thereby rotates with the spool. According to the first embodiment of the present invention, illustrated in figs. 1-4, this is achieved by supporting a crank 6 in an opening 9 provided in the centre of the line spool 5 and extended axially therethrough. More precisely, the crank 6 is formed by a support arm 7 that at a first end 7A thereof is provided with a socket-like seat 12 for a handle portion 8 having a general cylinder-shape.

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